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QUALITY CONTROL IN SOVIET INDUSTRY

[This report gives information on effecting quality control in Soviet enterprises by means of standardization of products, and describes the organization and functions of OTK (technical control divisions), as well as some of the legal aspects involved in the output of low-quality goods.

Numbers in parentheses refer to appended sources.]

Standards and Technical Specifications

The quality of industrial products in the USSR is regulated by standards which must conform to technical and economic requirements and potentialities of the USSR. The compliance with standards is compulsory for all state and cooperative enterprises. The Soviet GOSTs (State All-Union Standards) include all technical and other state requirements covering those products for which standards have been approved. The Soviet state actively influences the work of all branches of the national economy by organizing and guaranteeing the output of high-quality products with the help of standards.(1)

Standards are to be met in the production of most food items, of more than 50 percent of all products of light industry, of almost all metals and rolled metal products for general use, and in the production of the basic types of fuel, oils, lubricants, etc. Technical control is organized in industrial enterprises to guarantee the inspection of the quality of products, both during the production process and upon its completion. Technical control is making increasing use of instruments and devices enabling precision testing, and is contributing to the mechanization and automatization of quality inspections.

In a number of enterprises of union and local industry and industrial cooperatives, violations of standards are continuing to occur. During 1953, the Administration for Standardization checked 270 enterprises of machine building, consumer goods industry, food industry, coal mining industry, petroleum industry, and industrial cooperatives. The inspections disclosed serious violations of state standards in individual enterprises due to the criminal neglect and political irresponsibility of plant supervisory personnel who permitted the output of low-quality goods for the consumers' market and for industrial use.(2)

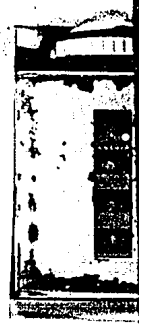
In the course of the development of socialist competition and the nationwide drive for better quality, the standard indexes are likely to lag behind the latest achievements of science and technology and the practical work results of leading enterprises. In such cases, standards are subject to revision in conformity with progressive technical and economic indexes.

When no standards exist for certain products, or the existing standards do not cover these products, the quality of such products is determined by technical specifications. Technical specifications give a qualitative description of the product and usually indicate the properties of the material of which the product is made, as well as various characteristics, depending on the manner in which the product is used. In the absence of either standards or technical specifications, the criteria used to determine the quality of products are samples and master models.

The procedure of approving technical specifications and samples has not yet been made completely uniform. As a rule, technical specifications for products used in industry are established either by a joint official document drawn up by the ministries representing the consumer and the producer, or merely by an order of the ministry representing the producer, depending on the purpose for which the product is to be used.

Technical specifications for consumer goods are approved by the ministries of the producing enterprises and by the Ministry of Trade USSR. If the consumer goods are made of local raw materials, waste products, or local raw materials supplied by the consumer, or by enterprises of local industry, cooperatives, or other public organizations, the technical specifications, after being determined by the Ministry of Trade USSR or its local organs, are approved either by the Council of Ministers of a union republic or by executive committees of kray or oblast soviets of workers' deputies. For example, the procedure of approving technical specifications by the permanent commission of the Leningrad City Executive Committee, in effect since 11 December 1950, provides that the technical specifications and samples prepared by industrial enterprises and agreed upon by the local center of the industrial organization should first be submitted to a subcommission of the executive committee, consisting of a large group of competent workers (commodity experts, Stakhanovites, engineers, etc.). After the technical specifications or samples have been approved by the subcommission, they are confirmed by the permanent commission of the executive committee, which again checks the quality of the product to be put into production. A thorough control is designed to prevent the sale of low-grade and poorly finished goods to the Soviet consumer.

In some cases, the Basic Delivery Terms provide for the manufacture of a product according to special technical specifications submitted by the consumer. Apparently, this rule can be applied not only in those cases when the consumer needs a special kind of product, but also in cases when he requires a product



of a higher quality than that provided for by standards, technical specifications, or samples. Therefore, it is possible for the contracting parties to deviate by agreement from the requirements of technical specifications, if this is necessary to raise the quality of the product. For example, the Leningrad "Elektrosila" Plant concluded a contract with another Leningrad plant for the delivery of generators. Both parties worked out temporary technical specifications. However, pending approval of the specifications by the proper supervisory organs, the "Elektrosila" Plant refused to produce the goods on the basis of these temporary technical specifications, insisting on the use of the old technical specifications which had been approved in the proper manner. On the other hand, the plant ordering the generators maintained that the old technical specifications were not as advanced as modern technology and that products based on those specifications would be inferior goods, which in turn would cause a deterioration in the quality of goods produced by the plant using the generators. The matter was settled by "Gosarbitrazh" (State Arbitration), which decided that the "Elektrosila" Plant should produce the goods in accordance with the new technical specifications; at the same time, both parties were advised to obtain approval of the new technical specifications within the shortest possible period.

Procedures of Quality Control

To guarantee a high quality of products, it is not sufficient to give a precise definition of the required quality; it is also necessary to establish a definite procedure of quality control and approval. At present, the procedure of quality control is established by the Basic Delivery Terms (in accordance with Instruction No 70, of 24 November 1952, issued by "Gosarbitrazh" under the Council of Ministers USSR). The Basic Delivery Terms define the place and time of inspection, the time limit for recording defects, and the procedure of accepting finished products and of recording defects.

A decree of the Council of Ministers USSR and of the Central Committee of the CPSU stated that current Basic Delivery Terms were inadequate for quality control, and directed the Ministry of Trade and the Central Union of Consumer Cooperatives to prepare within a month, in cooperation with producer ministries, new Basic Delivery Terms which would ensure a greater responsibility on the part of producers and trade organizations for quality and assortment of products and delivery periods.

Many of the Basic Delivery Terms which are now in effect still refer to the Instruction of Gosarbitrazh, Council of Ministers USSR, of 29 August 1939, in matters relating to quality control. However, this instruction was found to be out dated and inadequate and has been rescinded.

Many Basic Delivery Terms contain rules on guarantee periods. A guarantee period makes it possible to ensure that a product meets all requirements and that the quality indexes endure over a certain period of use. The guarantee period is determined either by technical specifications, or by agreement between both parties. There is usually a tendency to allow for longer guarantee periods, since the inclusion of longer guarantee periods in the contract forces the producer to strive for the output of high-quality products.

During the guarantee period, a product must fully retain its quality. For example, if during this period certain parts should become unfit for use through no fault of the consumer, the producer is obliged to replace such parts free of charge within a short period.

To guarantee high-quality products, it is necessary not only to establish definite rules for defining the quality of products in the contract, but also to carry on a determined struggle against all violations of contract terms relating to quality and to fix the material responsibility for the delivery of low-quality products.

If the purchaser is supplied with low-grade products, i.e., products which cannot be used for the intended purpose and which do not meet the required standards and technical specifications, he has the right to demand payment of a fine, the amount of which is determined by the Basic Terms of Delivery.

Low-grade products are not considered as fulfillment of the contract and the manufacturer must replace them by good-quality products. The recipient of the goods must refuse to accept low-quality products and must return the goods to the supplier. This is an effective way of ensuring high quality of products and this rule should be included in all Basic Delivery Terms.

As a general rule, no penalties may be imposed in case of noncontracted deliveries. However, in the event the deliveries include low-quality products, it is possible to depart from the general rule and to impose penalties. The practice of noncontracted deliveries was definitely condemned by decree of the Council of Ministers USSR of 21 April 1949. To discourage this practice, an instruction of Gosarbitrazh of the Council of Ministers USSR, dated 24 November 1952, provides that in the case of low-quality products a fine will be collected, not in favor of the recipient of the goods but as a contribution to the union budget.

Another important factor in the campaign for high-quality products is quality inspections by individual branches of industry. The basic tasks of these inspections are quality control of products manufactured by enterprises of a certain ministry, selective acceptance of finished products, control of the activity of OTK and of the work of plant laboratories created to improve quality and analyze rejects, and accounting and analysis of claims in regard to products manufactured by enterprises of a particular ministry.

The quality inspector checks the accuracy of quality indexes in accordance with standards and technical specifications and gives his conclusion on the quality of the product. Having satisfied himself that the quality meets all requirements, the inspector issues a certificate, pass, or other type of document concerning this product. However, if the product does not meet the requirements of standards or technical specifications, or if loading and transport conditions may cause a deterioration of quality, the inspector may refuse to issue a certificate to the manufacturing enterprise. The quality inspectors of various industries (otraslevyye inspektsii) must issue certificates on the quality of food products. The quality of other types of products is certified by certificates, passes, etc., which are usually issued by the OTK of the producing enterprise.

The Basic Delivery Terms include rules which make it necessary for delivered goods to be accompanied by a certificate, pass, or other document concerning the quality of the goods.

As a rule, the quality of products is checked very carefully and in all details, and certificates are issued strictly in conformity with the established quality. However, there are cases when a certificate is issued improperly, either through an error of the inspector or failure to consider certain properties of the product. In such cases, the recipient of the goods is obliged to contest the correctness of the certificate on the ground that it does not correspond to facts. The possibility of contesting quality

certificates and the procedure therefor are established only in some of the Basic Delivery Terms (e.g., wine products). In many cases, however, this rule is not included in the Basic Delivery Terms (e.g., margarine products), and sometimes it is even indicated that it is not possible to contest the quality of products delivered according to certificate. This makes it difficult for the purchaser to act promptly and effectively whenever he receives low-quality products.(1)

Organization and Functions of OTK

To guarantee the proper quality of products of the machine-building industry, the Council of People's Commissars USSR issued a decree on 8 December 1940 making a strict observance of technological rules mandatory and prohibiting any changes in the established technological processes without the permission of the people's commissar (or minister) or chief of main administration, and, only in individual cases, that of a plant director. It was also prohibited to introduce innovatory suggestions and inventions in the series production of machines without preliminary tests of sample products and without subsequent approval in the proper order.

The role of OTK in improving the quality of products, reducing the frequency of rejects, and regulating the delivery of products to the purchaser is extremely important. Technical control in each enterprise must be considered an integral part of the production process and the technical control divisions must be provided with all necessary tools, devices, and instruments on an equal basis with the basic production shops.

At present, the functions of OTK include not only control but also the prevention of rejects. It is not sufficient for OTK merely to determine the number of rejects. OTK organs must systematically disclose and analyze the reasons for defects occurring in each sector, each shop, and the plant as a whole, so that such defects may be promptly eliminated; they must also take part in the development and implementation of measures for improving the quality of products and for reducing the amount of rejects, and check the effectiveness of such measures. However, the main function of OTK is to ensure the high quality of manufactured products.

The main purposes of OTK operations in shipbuilding plants are as follows:

1. To promote systematic improvement in the quality of products manufactured by the enterprise.

2. To eliminate the occurrence of rejects in production.

3. To enforce weight control.

4. To take part in tests, to prepare delivery documents, and to supervise the delivery of products to the purchaser.

When these functions are properly performed by OTK, it results in an improved quality of ships, reduced production costs, and shorter construction and testing periods.

The direct control of the quality of products consists of the following:

1. Quality control in shops and individual work areas.

2. Control of outside deliveries of equipment, materials, and semi-finished products.

3. Control of storage and preservation.

4. Control of packing and completeness of units (komplektatsiya).

5. Tests of finished products.

Quality control in shops and at individual working areas is divided into the following types: operational (intermediate) control, periodic spot checks, (letuchiy kontrol') final control, and tests of finished products.

Operational control is carried out at certain stages of the manufacturing process in accordance with the technological-processes charts; this type of control is designed to prevent further processing of poor-quality semifinished products. The OTK inspector takes all the necessary measurements with the help of proper control tools, whereupon the semifinished products are stamped either with the inspector's stamp or the reject stamp. In the latter case, the inspector prepares a reject certificate on the proper form.

Periodic spot checks are made of products in the process of production to prevent an increased amount of rejects and also to check the observance of technological rules. If the tests show deviations from the sketches, technical specifications, or technological process, the processing of semifinished products and parts is immediately stopped. In the event the production foreman, who must be present during the inspection, does not agree with the results of the test, he must inform the shop chief immediately, while the control foreman informs the chief of OTK. The processing of such parts is resumed after the causes of the deviations have been eliminated. OTK workers who carry out spot checks note the reasons for deviations from technological specifications in certain operations, determine the responsibility in each case, and turn over their findings to the shop chief and OTK chief so that further deviations of this kind may be prevented.

The final control is an obligatory operation for each unit or part finished in a certain shop. A definite working space in the shop is allotted to the final control operations; the control foreman is given a special desk and a cabinet for storing tools and other necessary items. This special working area must be organized after the final production operations have been completed and before the finished parts and units are to be stored and removed from the shop.

All complex parts, assembled units, or finished products manufactured by a shop, before being submitted to OTK, must be carefully checked by the production foreman, who places his personal stamp on these products. Units and products which are especially complex (according to a special list approved by the plant director) are stamped by the shop chief.

In addition, to prevent mass rejects, production foremen must accept and stamp the first item of each worker's completed assignment.

During the final control, the parts or units are first subjected to a thorough external inspection to determine whether they conform to sketches or technical specifications, whether they have external defects, and whether they have the intermediate control stamp. After this, the necessary measurements are taken and it is determined whether the products conform to technical specifications, norms, standards, etc. Individual parts are subjected to mechanical tests, such as hardness tests and others, if necessary.

Upon completion of this inspection, the approved products are stamped by the control foreman of the shop and sent to the shop warehouse for finished products, or shipped directly from the shop to their destination.

Defective items are immediately turned over to a special warehouse, called "reject isolator," and a reject certificate is prepared indicating the nature of the deficiency, its cause, and the responsible parties. The senior control foreman of the shop retains the keys to the "reject isolator."

All equipment, mechanical devices, installations, semifinished products, and materials delivered to the plant are subjected to an external inspection to determine if they correspond to the accompanying documents and contracts. If it is established that such products do not conform to certificates, contracts, or technical specifications, a claim to that effect is drawn up immediately and forwarded to the supplier.

The control of storage and preservation conditions is carried out by the control foreman of the subdivision for the acceptance of outside deliveries, who makes periodic inspections of materials, semifinished products, and equipment received from outside, as well as those manufactured by the plant and stored in warehouses. In the event of unsuitable storage conditions, such as dampness, lack of protective installations, etc., the control foreman prepares a document in triplicate indicating unsatisfactory storage of the products. Two copies are submitted to the chief of OTK and one copy to the warehouse superintendent. The chief of OTK must then submit a written report to the plant director, offering concrete suggestions for the improvement of storage conditions. If the director fails to take the necessary steps, the chief of OTK is obliged to report the matter to the appropriate main administration.

The control foreman of the subdivision for the acceptance of outside deliveries must inspect each product before it is shipped to the consumer and must see that the shipment is complete as described in the accompanying documents; he must also check the quality of packing. The chief of OTK and the OTK subdivision for acceptance of outside deliveries are responsible for the completeness of products shipped by the plant and for the quality of packing.

The tests of finished products represent the final stage in the quality control of products. Such tests are made in conformity with a testing program or with technical specifications. If the results of the tests are unsatisfactory, the products are returned to the shop for correction of the discovered defects. Then they are tested again until such time as they meet all requirements.

In addition to the elements of technical control described above, there are others which do not involve a direct inspection of products against technical specifications and other documents but which are of a preventive nature; i.e., they serve as a warning of deterioration in quality and of the occurrence of rejects.

In the shipbuilding industry a definite procedure has been established for approving and changing technological processes. Therefore, any arbitrary change in the technological setup or any violations of technological rules by production workers and foremen may not take place without special permission; otherwise the guilty parties are severely penalized.

The control over observance of the technological process is performed by shop technologists and by OGT (Division of Chief Technologist), as well as by production and control foremen and OTK workers. This control consists both of direct observation at the working areas and of periodic spot checks. Each violation of a technological nature is documented and submitted to the plant director so that he may take the necessary steps.

One of the duties of OTK is the control of measuring instruments. For this purpose the organization of OTK at a plant must include a Central Measuring Laboratory (TsIL).

OTK is also obliged to carry out regular preventive measures aimed at improvement in quality of products. It is necessary to prepare statistical reports and to study the reasons for low quality of work, which may be caused by various factors, such as low quality of semifinished products, poor organization of work, and poor quality of measuring and work tools. In each case the reasons must be made known to the shop and OTK chiefs, and in some cases to the chief engineer of the plant.

Technical control operations which have been planned and developed by plant technologists are obligatory for the shop personnel of OTK. Any changes or deviations from these operations may be permitted only by higher organizations than those which have approved the technological process.

The work of controlling the quality of products, preventing waste and rejects, checking weights, preparing the necessary documents, etc. is performed by the OTK within the plants. The OTK are independent organs subordinated directly to the plant director. All finished or semifinished products manufactured by the plant may be shipped or delivered to the purchaser only after they have been approved by the OTK. The OTK prepares all delivery documents and all documents relating to the inspection and approval of materials, semifinished products, and equipment.

The functions of the OTK of a shipbuilding plant are as follows:

1. To see that the actual construction of ships conforms to the approved plan.

2. To see that the products manufactured by individual shops and by the plant as a whole conform to sketches, technical specifications, standards, and departmental norms.

3. To execute control over the strict observance of technological production processes.

4. To see that the ship ready for delivery is accompanied by the necessary documents.

5. To take part in carrying out dockside and running tests of ships.

6. To check the mechanical parts at the time of their inspection following the running tests.

7. To carry out weight control during the construction of ships.

8. To inspect and approve basic materials, semifinished products, and equipment.

9. To analyze rejects and work out measures to prevent rejects.

10. To supervise the storage and preservation of materials and equipment, both in plant warehouses and on the ships.

11. To supervise measuring operations and devices.

The OTK includes central personnel attached to the plant administration and shop personnel assigned to the shops.

The rank-and-file inspectors (kontrolery) of OTK are in the same category as ordinary plant workers.

The central personnel of OTK has the following functions:

1. Organization and general supervision of all OTK organs.

2. Preparation of all documents accompanying ships ready for delivery, as well as documents certifying the quality of accepted products.

3. Accounting and analysis of rejects for the plant as a whole, and analysis of reject documents and claims received from consumer plants.

4. Preparation of practical measures based on the analysis of rejects for the improvement of quality and prevention of rejects.

5. Preparation of reports on the work of OTK and submission of such reports to higher organizations.

6. Organization and execution of weight control in the plant, and solution of all problems connected with weight control.

7. Supervision of all measuring devices, preparation of schedules for periodical and state inspections, and supervision of the proper fulfillment of such schedules.

In accordance with these functions the structure of the central apparatus should be as follows:

1. OTK management (chief, deputy chief, and secretary-typist)

2. Bureau of Technical Documents

3. Bureau of Accounting and Analysis of Rejects

4. Bureau of Weights

5. Central Measuring Laboratory

The number of personnel is determined in accordance with the size of the plant.

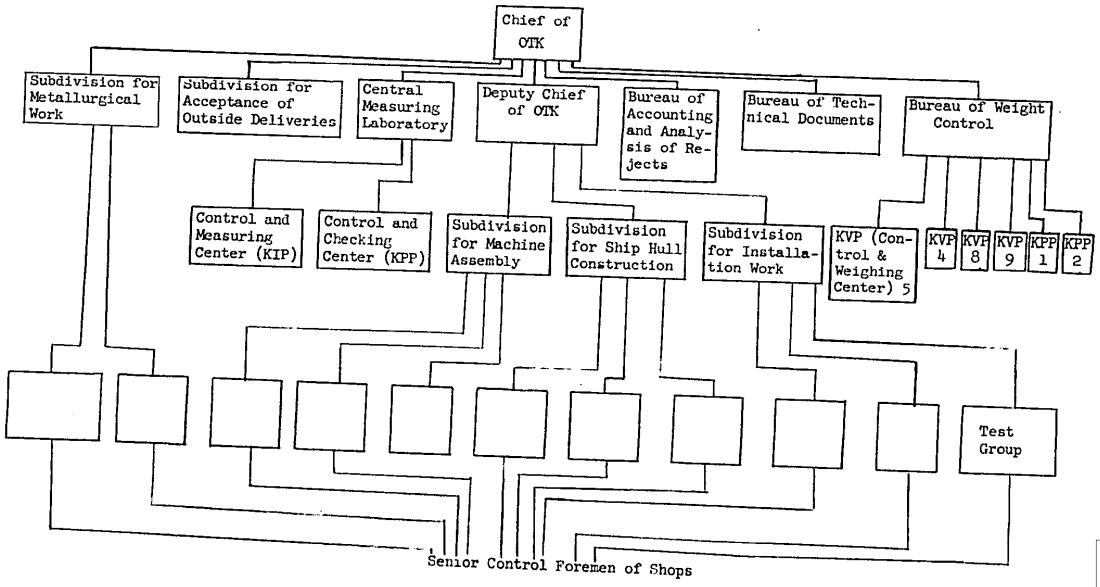
The central apparatus of OTK is paid from over-all plant expenditures. The shop personnel of OTK is organized in the form of OTK subdivisions, which are operational organs for the control of basic production, control of technological rules, and prevention of rejects. Shipbuilding plants include the following subdivisions: installation work; ship hull construction; machine assembly; and acceptance of outside deliveries. Plants having foundries and forge shops also include an OTK subdivision of metallurgical work.

A subdivision is headed by a chief, who supervises all the control foremen in a certain group of shops.

During the period of dockside and running tests of ships, special testing groups are organized under the subdivision of installation work.

The structure of OTK is shown in the following diagram:

Structure of OTK of Shipbuilding Plants



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The following is a description of the rights and duties of the OTK chief, the bureau chiefs, the chiefs of subdivisions, the senior control foremen, control foremen, and inspectors.

The OTK chief may be appointed or dismissed only by the minister on the recommendation of the plant director. The OTK chief represents the plant in all matters outside the plant in connection with the quality of products.

The OTK chief is subordinated, operationally and administratively, only to the plant director; in matters pertaining to basic directives and instructions he is subordinated to the Technical Inspection of the Ministry.

The OTK chief, on an equal basis with the director and chief engineer, is made responsible for the output of low-quality or incomplete products, as stated in the order of the Presidium of the Supreme Soviet USSR, dated 10 June 1940. He is also responsible for the correct organization and setup of technical control in all units of OTK in a plant.

The duty of the OTK chief is to carry out daily supervision over all organs of the central and shop apparatus of the OTK and to organize their work in accordance with the functions assigned to them. During the period of dock-side and running tests of ships, he organizes testing groups and supervises preparations for the tests, as well as the timely preparation of all technical documents accompanying the delivery of ships.

The OTK chief must introduce improved methods and modern technical achievements for the technical control of quality and must work out effective measures, together with the shops and divisions of the chief technologist and the chief metallurgist, to raise the quality of products and reduce rejects; he must also supervise the execution of such measures and report to the director on the results.

On the basis of data received from control foremen concerning defective work, the OTK chief reports each month to the director, indicating which of the production foremen have approved and released defective products, so that these foremen may be penalized.

The OTK chief, together with the senior representative of the customer, must examine any comments made by the customer regarding goods delivered by the control foremen; he must not let any deliveries of defective goods occur without penalizing the responsible party.

The OTK chief personally solves all disputes arising between shop representatives and control foremen, or between representatives of the customer and control foremen; in case of necessity, he employs the aid of plant laboratories in analyzing the structure and mechanical properties of metals.

In addition, the OTK chief, through the Central Measuring Laboratory, is usually in charge of supervision over measuring devices at the plant and is responsible for their quality and for the proper fulfillment of schedules for state inspections and periodic inspections.

According to an established form, the OTK chief must submit monthly reports to the plant director and to the ministry on the work of OTK during the accounting month. In the event that he discovers violations of technological rules, the OTK chief reports to the director so that appropriate steps may be taken.

The decision of the OTK chief regarding satisfactory quality of a product is considered final and may be rescinded only by written order of the plant director. If the OTK chief does not agree with the director's order, he is obliged to report to the ministry to this effect.

The OTK chief also has the right to correspond independently with contracting plants, consumer plants, and the Technical Inspection of the ministry, in matters pertaining to quality of products or rejects.

Finally, the OTK chief has the right to consult specialists, both at the plant and outside, for the purpose of deciding technical disputes.

The Bureau of Accounting and Analysis of Rejects also has the responsibility of making reports on the work of OTK to higher organizations and to the plant director.

The OTK subdivisions in various shops of the plant carry out operational control of production and quality of products.

The subdivision for acceptance of outside deliveries inspects the materials and equipment received from outside plants and also supervises the storage and preservation of equipment, machinery, and materials in plant warehouses.

A subdivision of metallurgical shops is organized when a plant has two or more foundry shops. If the plant has only one foundry shop, the functions of the subdivision chief are performed by the senior control foreman of this shop.

The subdivision of metallurgical shops, which consists of the subdivision chief, an accounting clerk, senior control foremen, control foremen, and inspectors, is in charge of quality control for products of the foundry, the pattern shop, and the forge shop. In the event of a violation of technological rules, the shop chief must be notified immediately and the proper document must be prepared and submitted to the OTK chief. The subdivision chief and the control foremen must keep in constant touch with the various plant laboratories, using them for tests and analyses and for working out measures to improve quality and reduce rejects.

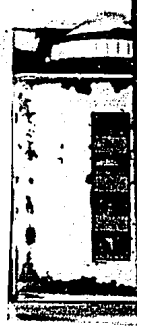
The subdivision for machine and assembly shops inspects and approves the products of all machine shops, assembly shops, the tool shop, and the machinery and repair shops. The inspector or control foreman who discovers violations of technological rules should immediately prepare a statement to that effect and submit it to the OTK chief, notifying the shop chief at the same time. If the shop in question fails to comply with suggestions for the prevention of rejects, the shop chief and the OTK chief are notified.

The chiefs of OTK subdivisions are subordinated directly to the OTK chief and are responsible for the control work carried out in individual types of shops and for the quality of products produced by these shops.

The chiefs of subdivisions represent the one-man management principle in the technical and administrative supervision of quality control in a given group of shops, and act as representatives of the plant's OTK in solving all kinds of problems with the shop administration, with representatives of the customer, and with representatives of planning organizations.

The chiefs of subdivisions sign all delivery documents for products manufactured by the plant. In addition to the administrative responsibility, the subdivision chiefs also carry the material responsibility for the output or delivery to the customer of low-quality or incomplete products.

The senior control foreman heads the control work in a shop and is directly subordinate to the chief of the OTK subdivision, or if there is no subdivision, to the OTK chief. He has the full administrative and material responsibility for the work of his sector in regard to quality control of products manufactured by the shop and the delivery of defective goods to the customer.



The senior control foreman is the technical and administrative head of the control apparatus of a certain shop and represents the plant's OTK in settling questions with the shop administration and with representatives of the customer.

The senior control foreman, like the subdivision chief, may be hired or dismissed only by the plant director on the recommendation of the OTK chief. The functions of the senior control foreman include the organization of proper technical control in the shop. He arranges for working areas for the control foremen and inspectors and keeps them supplied with the necessary measuring tools and other equipment, as well as technical documents, sketches, and technical specifications.

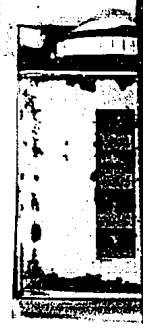
The senior control foreman gives instructions to his subordinate control foremen and inspectors (kontrolery), checks their work regularly, keeps an account of rejects in his shop, works out measures to prevent rejects, and checks the execution of such measures in his shop.

All the reject certificates for a certain shop are turned over daily by the senior control foreman to the subdivision chief, or in the absence of the latter, directly to the Bureau of Accounting and Analysis of Rejects. Only the subdivision chief has the right to complete the documents concerning delivery of finished products; however, in the absence of the subdivision chief, the senior control foreman is authorized to sign technical documents for his shop in connection with the output of finished products.

The OTK control foreman heads a group of inspectors in a certain shop sector (for example, in machine shops there is a lathe sector, a milling sector, and a fitters sector); the control foreman is subordinate to the senior control foreman, to whom he is responsible for the work of his sector. It is the control foreman's duty to accept all finished work from the production foremen. He must instruct the inspectors, decide all matters pertaining to products rejected by the inspectors, and prepare reject documents. The control foreman constantly checks the fulfillment of measures introduced to improve the quality of products and to reduce the amount of rejects. In each case of nonobservance of such measures, he must report to the senior control foreman or chief of the subdivision.

It is also the control foreman's duty to see that the working areas of the inspectors are properly organized and to supply them with the necessary equipment, materials, tools, technological documents, GOSTs, norms, and technical specifications. The control foreman must be familiar with all the details of sketches, technical specifications, GOSTs, and norms, and whenever he takes part in tests, he must be familiar with the test programs for the products of his work sector. The signature of control foremen is valid on reject documents, as well as on delivery documents of his work sector. If a certain sector of a shop represents the final stage in that shop in the production of the finished product, the document of final approval must be prepared by the senior control foreman.

The OTK inspectors are subordinate to the control foreman and are responsible for defective products accepted by them. The inspector approves a product in accordance with established technological rules, sketches, GOSTs, norms, and technical specifications at his working area. If the parts or products are made according to rules, the inspector places his personal seal on the product; he also places his personal stamp "Accepted" (prinyato) on the work order and retains this work order. At the end of a shift, all the collected work orders are turned over to the control foreman, who in turn sends them to the bookkeeping office of the shop. An inspector is not authorized to reject any product independently; he prepares the reject slip, signs it, and calls upon the control foreman to complete the document.



An inspector does not have the right to make a formal acceptance of complex finished products, of assembly and installation work on products and instruments before their delivery to the representative of the customer, and of finished products released by the shop. Inspectors are not authorized to sign technical documents pertaining to tests.

Relations Between OTK and Other Organs of the Plant, Representatives of the Purchaser, Outside Consumers, and Suppliers

The OTK control of products manufactured by a plant does not relieve the shops of the responsibility for the quality of these products. Therefore, the work of OTK personnel is closely coordinated with the work of the shops. OTK checks not only the finished products and the products in the process of manufacture, but also the methods of production. The shop must assign working space to the OTK control foremen and inspectors. The control foremen accept products from the production foremen and keep a record of the quality of work turned out by the production foremen, as determined by defects discovered in the products or in the work. Together with the shop administration, OTK makes a daily inspection of the rejected products in special inspection rooms to determine the causes of rejects. If there has been an excessive amount of rejects or a serious violation of technological rules, OTK may halt production through the shop chief. OTK submits reports and suggestions to the plant director whenever a shop administration is found guilty of defective output or violations of technological rules and is to be penalized. In cooperation with the shop administration and shop technologists, OTK makes an analysis of rejects in the shop and works out measures for improving quality, lowering the amount of rejects, etc.

OTK receives from OGT (Division of the Chief Technologist) and OGM (Division of the Chief Metallurgist) the approved technological processes for important parts, assembly, and installation, as well as GOSTs and departmental norms, and notifies OGT and OGM of all cases of violations of technological processes in shops. OGT and OGM notify OTK regarding all changes in technological processes.

OTK reports to OGT and OGM in all cases where the analysis of rejects has disclosed that the technological processes in use were incorrect or unsatisfactory.

OTK, jointly with OGT and OGM, works out measures for the whole plant which are to improve quality and reduce rejects.

The KB (Design Bureau) of the plant supplies OTK with assembly and installation sketches and sketches for essential parts or units, technical specifications, and test programs. OTK in turn notifies KB whenever errors are discovered in the sketches, and whenever KB is directly responsible. OTK prepares a reject slip indicating the guilty party.

OTK receives all claims through the contract group and the legal consultant of the plant, and submits to the legal consultant for completion all claims pertaining to outside deliveries.

OTK submits to the Central Accounting Office of the plant one copy of all reject slips. The Central Accounting Office transmits to OTK all data concerning losses through rejects.

OTK delivers to the representatives of the customer all completed products in strict accordance with the approved list of items to be delivered. In the event the representatives of the customer discover defects in the products received, they should make appropriate written comments and return the products

for correction or completion. If any doubts arise as to the validity of the comments made by the representative of the customer, the OTK chief should discuss the matter with the senior representative of the customer.

When the products are delivered after correction of the defects, the OTK chief must personally sign the second notice accompanying the goods. Equipment or machinery which requires prolonged and expensive tests should be inspected and approved jointly by OTK and by the representative of the customer.

OTK presents to the representative of the customer for signature all passes, forms, and other delivery documents. In addition to the obligatory final inspection, the representative of the customer has the right to make periodic checks of any phase of the work in the construction of a ship, as well as to check the correct application of technological rules, to control weights, and to inspect storage and preservation facilities, equipment, and installations, both in plant warehouses and on the ship. If any defects are discovered during such inspections, the representative of the customer prepares an appropriate inspection document. In such cases, OTK must immediately check the correctness of such a document and take the necessary steps to have the defects promptly corrected, notifying the customer to that effect.

OTK registers all goods received from outside enterprises, as well as those shipped to consumers. If the supplying enterprise is responsible for defects, OTK draws up claims and, if necessary, requests the representative of the supplying enterprise to inspect the defective goods and to take part in drawing up the claim.

In the event claims regarding products are received from consumers and OTK does not agree with such claims, a representative of OTK is sent to the consumer to make a final decision on the acceptability of the goods.

OTK also conducts all correspondence with suppliers and consumers in all matters pertaining to quality of goods. In addition, OTK approves contracts made with suppliers to see that all specifications conform to requirements.

The plant may not put into production any materials, semifinished products, or equipment received from outside suppliers and not approved by OTK.

OTK must prepare regular monthly reports on its own work and on the work of the plant as a whole with regard to the improvement of quality, thereby enabling any higher organizations to take steps to improve the work of the plant. These reports must show the losses incurred by the plant through rejects during the accounting month, in percent of expenditures for the gross output of the plant during the same period.

Technical control, as mentioned before, not only includes the approval or rejection of finished products, but must be directed toward the prevention of defective output during the work process.

According to a new method of control recently introduced, the OTK inspector (or control foreman) makes the rounds of all working areas, without waiting for finished or semifinished items to be submitted to him for inspection, as had been done in the past. In this way, the inspector checks the work for each operation of a technological process; i.e., for a whole cycle of operations. This enables him to stop the work at any moment that a defect in production is discovered, thereby making it

possible to correct the defect before the item is processed further, which would result in a final rejection of the finished product. This method is especially helpful in shipbuilding, in installation and hull-building work. There have been fewer cases of rejects in the sectors of those control foremen who have used the new method.

In large-series or mass production, the so-called statistical method of control is sometimes used. This is based on statistics of deviations in dimensions of the manufactured products from the average tolerances.(3)

Chemical plant laboratories, as another example, have independent technical control divisions as a part of their staffs. The OTK in enterprises of the Ministry of Chemical Industry must perform the following functions:

1. Inspect raw materials, semifinished products, and finished products, and see that their quality conforms to established standards and technical specifications.

2. Inspect the storage of raw materials and semifinished and finished products.

3. Inspect the preparation of containers to see that they conform to established standards and technical specifications, supervise packing and marking, and supervise the preparation of railroad consists for transporting goods.

In performing these duties, the OTK has taken over functions formerly performed by the central plant laboratories, relieving the latter of a large amount of their analytical work. The staff of an OTK now includes a control and analytical laboratory, whose function is to analyze raw materials received at the plant as well as semifinished and finished products manufactured at the plant. However, central plant laboratories may still perform control and analytical work for the OTK in small enterprises, and in special cases, also in large enterprises.

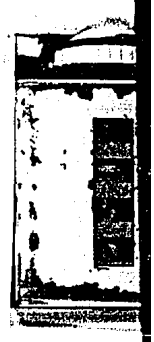
Two types of OTK may be found in chemical plant laboratories:

1. An OTK which performs control duties from the beginning to the end of the control process and whose work has little connection with the work of the central plant laboratory.

2. An OTK which only takes and prepares samples, sending the samples to the central plant laboratory for analysis. The OTK then decides on the suitability of raw materials and finished products on the basis of analyses performed by the central plant laboratory. This decision is written on the certificate of analysis. If the sample is not up to standard, the OTK prohibits the use of a raw material in the plant or prohibits the plant from producing a certain finished product.

Because of the importance of its functions and the necessity for giving it high authority, the OTK is directly subordinate to the director of the enterprise.

Each plant selects its own OTK staff and submits the selections to the proper main administration for approval. An OTK staff consists of the following categories of workers: the OTK chief; samplers; controllers, who supervise the work of samplers, the preparation of containers, the packing, the receipt of raw materials, and the delivery of finished products; workers who prepare (i.e., break down and reduce) samples; and laboratory heads, chemical analysts, and laboratory technicians, if the OTK has an analytical laboratory.



OTK workers do not have the right to combine their work in the OTK with the work in any other division or shop of the plant.

The OTK chief must be an engineer and must know the production of the plant in which he works. The OTK chief is appointed and dismissed by the chief of a main administration.

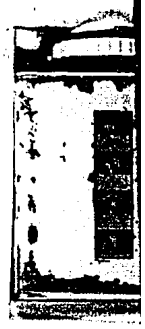
In the event raw materials which were not inspected by the OTK are discovered in use by any shop, the OTK chief reports to the director of the plant, suggesting that the guilty party be held responsible. Even if the raw material appears to be completely normal in quality, the shop administration is not free to disregard the rights of the OTK. The OTK must also see that the established technological process is accurately observed so that rejects may be avoided. When rejects occur because of nonadherence to the technological process, the OTK chief must demand that the plant administration take the necessary steps to correct the deficiency, even to the extent of stopping the work of a certain production sector. The OTK chief, however, does not have the right to interfere in production, if the possibility of producing rejects has not occurred.

Only the OTK chief has the right to permit or prohibit the delivery of products from the plant. Although the OTK chief is subordinated to the plant director, the director may not order products which have been rejected by the OTK to be sent from the plant. If the director does not comply with the decisions of the OTK, the OTK chief should immediately inform the chief of the main administration and the technical division of the Ministry of Chemical Industry. The final responsibility for the output of products which are below standard or of a poor quality rests on the director and the chief engineer of the plant.

The OTK samplers are organized into individual groups or brigades. Detailed instructions for taking samples of raw materials and finished products have to be drawn up. These instructions must take into account the characteristics of the material from which samples are being taken and the conditions of arrival; i.e., type of transport, amount and type of containers, size of sets, etc. Samplers must be completely impartial in selecting their samples.

Each sample which arrives in the laboratory is given a number and a certificate. The best way of registering samples is by a card system. An index card is filled out in duplicate for each sample. One card remains in the registration office and the other is sent with the sample to the analyst. The card indicates the time and place of obtaining the sample, the name of the material, the size of the shipment from which the sample was taken, the numbers of the railroad cars or tank cars, the station of origin (for raw materials or fuel), the station of destination (for finished products), and the last name and initials of the sampler.

The card system of recording makes it possible to determine the work load of a laboratory at any given moment, the absence or presence of samples delivered for analysis, the time consumed in analysis, the productivity of a laboratory for a certain period, etc. The index card which has gone to the analyst with the sample indicates who accepted the work and when it was finished, the results of analysis, and the signature of the analyst. The card with these data and the remainder of the sample is then returned to the registration office, where a production certificate is drawn up. Finally the sample is stored in a warehouse.



Correspondence between suppliers and consumers regarding the quality of products is handled by the OTK of a plant. The OTK must provide well-organized storage facilities for control samples of raw materials and finished products. The various time limits for storing samples of finished products have been specified by GOSTs. Time limits for the storage of raw material, fuel, and waste product samples have not been fixed by GOST.

Prolonged periods for storing samples have been established in the interest of producing plants, as it is entirely possible that consumer plants located at great distances from the producers will want to continue receiving goods over a period of time. In the event the consumer discovers discrepancies in the data submitted by the producer, he fills out a complaint which is sent to the producing plant. Upon receipt of the complaint, the OTK must examine the analysis entry and the journal of the laboratory technician, and then analyze the sample which has been stored in the warehouse. The new analysis may confirm the results of the old analysis or produce new results. If the new analysis confirms the old analysis, the OTK informs the consumer that it has found the old analysis to be correct and presents the sample for arbitration.

If a complaint does not arrive at the producing plant within the period specified by GOST for storing samples, the plant has the right to consider the goods as being accepted, to destroy the sample, and to regard all further claims as unfounded.

The majority of standards indicate that "the selection of a laboratory for arbitrational analysis is determined by an agreement of both parties." A large part of arbitrational analyses is conducted by analytical laboratories of the scientific research institute of the chemical industry. The results of the arbitrational analysis are binding for both sides.

The OTK has to prepare and submit to the Main Administration monthly reports on the quality of production; i.e., which products are of first-rate, second-rate, or third-rate quality. The reports also contain information on all products which deviate from norms established by GOST, OST (All-Union Standards), or TU (technical specifications). Information concerning complaints and their explanations is reported separately.

The OTK keeps three journals:

1. A registration journal for raw materials and semifinished products which arrive at the plant.

2. A registration journal for semifinished products which are received from shops of a given enterprise for intraplant use.

3. A registration journal for finished products.

These three journals, along with an analysis record card, are illustrated below.

C-O-N-F-I-D-E-N-T-I-A-L

ANALYSIS RECORD CARD

OTK of Plant _____

Analysis No _____

Name of Product _____

Place of Origin _____

Shipment, Car, or Tank Car No _____

Quantity _____

Date of Arrival _____

Date and Place Where Sample Was Taken _____

Sampler _____

Quality Indexes

No	Indexes	GOST, OST, or TU Requirement No	Results of Analyses and Experiments

Date of Analysis _____

Analysis Conducted by _____

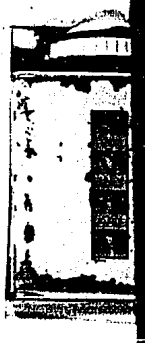
Plant Laboratory _____

Decision of OTK _____

Where Substandard Raw Material Was Sent and by Whose Permission _____

OTK Chief (signature)

C-O-N-F-I-D-E-N-T-I-A-L



REGISTRATION JOURNAL

for Incoming Raw Materials and Semifinished Products

No	Name of Raw Material	Quantity	Date of Receipt	Supplier	Shipment No	Date Shipped	Presence of Supplier's Certificate and Data on Material	Results of Analyses and Experiments	Decision of OTK	Disposition of Substandard Material

REGISTRATION JOURNAL

for Semifinished Products Received for Intraplant Use

No	Name of Products	Quantity	Date of Receipt	From which Shop	Quantity According to Shop Records	Results of Analyses and Experiments	Decision of OTK	Consumer Which Rejected Product	

C-O-N-F-I-D-E-N-T-I-A-L

REGISTRATION JOURNAL

for Finished Products

Name of Product _____

Date	Shipment No	Results of Analyses and Experiments	Decision of OTK	Consumer Which Rejected Product	Person Responsible for Releasing Sub-standard Product

All GOST or TU indexes on which the OTK certificate is based are entered in the column "Results of Analyses and Experiments."

The most important document distributed by the OTK is the Certificate of Analysis illustrated below:

CERTIFICATE NO _____

OTK of Plant _____

for _____ (name of product)

Date of Certificate _____

Shipment No _____

Quantity _____

Types of Packing or Containers _____

To Whom Product Was Sent _____

Quality Indexes

No	Indexes	GOST, OST, or TU Requirements	Results of Analyses and Experiments

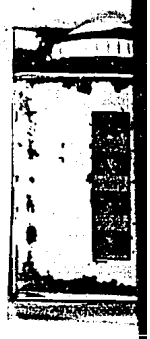
Name of Person Conducting Analyses and Experiments _____

Decision of OTK _____

_____

OTK Chief (signature)

This certificate is prepared in triplicate. One copy is sent to the consumer, a second copy is sent to the producing shop, and a third copy remains with the OTK.



If an OTK does not have an analytical laboratory, the tasks of the analytical division of the central plant laboratory are as follows:

1. Analysis of all raw materials arriving at the plant.

2. Analysis of fuel and determination of its heating capacity.

3. Analysis of semifinished products received from outside or made by shops within the plant and delivered from one shop to another.

4. Analysis of all products produced by shops of the plant by means of control methods and norms.

5. Analyses for the research division and other divisions of the central plant laboratory.

6. Consultation with shop laboratories, the OTK, and other divisions of the central plant laboratory on all analytical problems.

7. Preparation of analytical data, examination of methods for planning new norms proposed by the plant, and revision of existing norms.

When the OTK has its own analytical laboratory, the work of the analytical division of the central plant laboratory is considerably reduced. All types of analyses mentioned under items 1,2,3, and 4 are in this case performed by the OTK laboratory, and the work of the analytical division is devoted more to scientific problems. The analytical division is then given the function of arbitrator between individual shops and the OTK, as the central plant laboratory performs analyses for arbitration in disputes between shops and the OTK and inspection analyses in disputes between the OTK and representatives of consumers. Such inspection analyses may become arbitration analyses by consent of the consumer.(4)

Legal Aspects of Low-Quality Output

The ukase of the Presidium of the Supreme Soviet USSR of 10 July 1940 has established criminal responsibility for the output of low-quality goods by industrial enterprises.

The text of the ukase reads, in part, as follows:

"1. The output of low-quality or incomplete industrial products and the output of products which violate the specified standards are heinous anti-state crimes equivalent to sabotage and carrying with it severe penalties

"2. Directors, chief engineers, and chiefs of technical control divisions of industrial enterprises, who are responsible for the output of low-quality or incomplete products and for the output of products violating specified standards, are to be prosecuted and sentenced by court to 5-8 years' imprisonment."(5)

However, this ukase does not apply to the production of goods which are subsequently rejected at the producing plant and are not released. Although the production of low-quality goods (a high percentage of rejects, incorrect assembly of parts, etc.) in itself may be considered a crime against the socialist economy, nevertheless it must be judged on the basis of legislation applicable to poor management or negligence. The ukase of 10 July 1940 may be applied only if the low-quality goods have actually been released by the enterprise.

In a decree of the Presidium of the Supreme Soviet USSR of 30 September 1949, it was pointed out that the term "the output of products" is applied both when the products have been delivered to the customer and when the products have passed the inspection of the OTK and have been finally approved for delivery.

The decree of 10 July 1940 is applicable not only in the case of low-quality goods, but also in the case of incomplete or nonstandard products. The concept of "low quality" (or poor quality) applies to products which do not meet the purpose for which they are made. The presence of miner defects does not necessarily mean that the product is of poor quality.

If the industrial enterprise which is found guilty of delivering poor-quality products blames another enterprise from which it has received poor-quality semifinished products, this fact may not be regarded as a valid excuse, since the enterprise in question is not obliged to accept inferior semifinished products or raw materials.

Incomplete products are those which lack essential parts or spare parts, as well as those delivered without the required technical documents. For example, in the construction of hydroelectric stations, plants, mines, etc., complex equipment is necessary which, as a rule, can be put into operation only with the help of technical descriptions and sketches. The lack of such documents makes it impossible to use the equipment in the proper manner. Therefore, such products must be considered incomplete.

An important point to consider is the naming of the parties responsible for the output of poor-quality goods. According to the ukase of 10 July 1940, a certain group of people may be held responsible; i.e., directors, chief engineers, and chiefs of OTK of industrial enterprises. Chairmen of industrial artels, technical supervisors or production managers, or any person who may have a different title but is actually performing the duties of an OTK chief should also be held responsible; however, some courts take the meaning of the ukase too literally and do not include such persons.

As a rule the courts do not differentiate between cases involving the output of inferior goods as a result of premediated action or as a result of negligence. However, it has been admitted in some cases that the guilty party, in view of special circumstances, was unable to foresee the output of low-grade products. For example, in the case of a certain B., who was graduated from a tekhnikum in December 1947 and was appointed an OTK chief in June 1948, it was conceded that since she was a young specialist she did not have the necessary knowledge or practical experience to enable her to foresee the output of low-grade products. Accordingly, the court did not prosecute her for criminal negligence.(1)

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